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means of its loop to a pair of pullies *o o*, by pulling at the cord of which, the apparatus with the patient reclined on it, is raised out of bed.

No. XVI.

REMONTOIRE ESCAPEMENT.

The sum of TWENTY GUINEAS *was given this session to Mr. J.* AITKIN, *St. John-street, Clerkenwell, for a* REMONTOIRE ESCAPEMENT. *The following communication has been received from him on the subject; and a model of his invention has been placed in the Society's repository.*

55, St. John-street, West Smithfield,
March 1, 1824.

SIR,

I BEG leave to request that you will have the goodness to submit to the Society for the encouragement of Arts, Manufactures, and Commerce, the accompanying model of a time-keeper, containing my invention of a new remontoire escapement, by which the motive force is transmitted to the escapement uniformly and without impeding the vibration of the pendulum, which is the case in all those that I have hitherto seen.

I am, Sir,
&c. &c. &c.
JOHN AITKIN.

Arthur Aikin, Esq.
Secretary, &c. &c.

Reference to the engraving of Mr. John Aitkin's Remontoire Escapement.—Plate XIV.

FIG. 1 is a view of the escapement, having the front plate removed.

Fig. 2 is a side view.

Fig. 3 is a longitudinal view of the axis of the escapement-wheel and a section of its appendages.

(The same letters refer to the same part in each figure.)

A A Is the front plate, and B B the back plate, the lower part of which is represented as broken off: the dotted circle D represents the fuzee-wheel, which works into the pinion *e*.

E Is the second wheel, which is fixed on the axis of the pinion *e*, and works into the pinion *f*.

F The third wheel, which is fixed on the axis of the pinion *f*, and works into the pinions *g* and *h*.

G The escape wheel, H the palettes.

The pinion *h* is fixed on the axis *i i*, and also eight spring detents *j k l m n o p q*, the ends of which rest against the cylindrical side of the axis *r r* of the escape-wheel, and escape through the notches 1 2 3 4 5 6 7 and 8 in succession, as the axis *r r* turns round.

The position of the gaps, in the side of the axis *r r*, is represented in fig. 4 by the figures 1 2 3 4 5 6 7 and 8.

The axis or arbor *r r*, on which the escape-wheel is fixed, passes through a cylindrical hole in the pinion *g*, and is at liberty to turn freely within it.

s Is a collet, which is fixed on the socket of the pinion *g*.

Fig. 5 is an end view of the collet *s*, together with the helical spring *t*, one end of that spring being fixed to the collet *s*, and the other end to the collet *u*.

Fig 6 is an end view of the collet *u*: this collet is fixed upon the arbor *r r* by the set screw *v*, and by means of it the spring *t* may be wound up to a proper strength, so as to overcome the friction of the axis *r r*, and cause the escape-wheel G to turn round. When the clock has been wound up, the pendulum put in motion, and the axis *r r* of the escape-wheel has turned one-eighth round, the detent *j* will be at liberty to pass through the gap *g*; then the wheel F will cause the pinion *h*, together with the detents, to turn one-eighth round, consequently the detent *k* will be turned till it rests against the cylindrical side of the axis *r r*, opposite to the gap 7; the wheel F will also at the same time turn the pinion *g*, together with the collet *s*, one-eighth round, which will rewind the helical spring *t*, and give sufficient power to the escape-wheel *g* to make one-eighth of a revolution more by the unwinding of the spring; the detent *k* will then be at liberty to escape, and the wheel F will again cause the pinions *h* and *g* to turn one-eighth round, and at the same time the helical spring will be again wound up.

In this instrument the swing-wheel acts with an equal force, when the motive power is even doubled, without affecting the isochronism of the pendulum. This is not the case in the clocks hitherto constructed by Mudge, by Cumming, and others of a later date; for all those, more or less, are affected by the irregularity of the train, and therefore the pendulum is more or less disturbed by the unlocking of the detents.

Those who possess clocks on the remontoire principle, as hitherto constructed, will find, on trial, that by adding a double weight, the irregularity will increase, or rather the clock will stop altogether. But an increase of weight will not stop my time-keeper, nor cause any irregularity in its motion. They will also have the mortification to find, on trial, that the usual dead beat escapement is absolutely preferable to to those elaborate escapements.

An objection may arise respecting my contrivance, namely, that the renovating spring, in its unbending is weaker than when bent up; but these inequalities are constantly the same every 6″, and therefore do not destroy the isochronism of the pendulum. It would, perhaps, be better to have ten notches in the cylinder, in which case the spring would be unbent once in 6″. The notched cylinder may be about the tenth of an inch in diameter.

JOHN AITKIN.